

Pulling, pushing, and lifting require skeletal muscle mass and strength of both upper and lower limbs. To rule out dynamic resistive exercise for patients with CHF on the basis of “no known” anti-remodeling effect and without the demonstration of harm would limit initiatives to adequately assess the possible value of this particular training modality.

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Reply

We thank Dr. Conraads and colleagues for their interest in our meta-analysis. They attribute the lack of positive effects of combined aerobic and strength training reported in our review (1) to greater rates of beta-blocker prescription in the more recent trials of combined training. However, although we agree that beta-blockers have a positive effect on reverse ventricular remodeling, overall prescription rates of beta-blockers were not greater in the trials examining combined training (combined: 31% vs. other trials 44%).

Dr. Conraads and colleagues are correct that the rate–pressure product is lower during leg press exercise versus cycle exercise when

performed at the same relative exercise intensity (2). However, the rate–pressure product is not an appropriate measure of left ventricular wall stress (i.e., ventricular pressure multiplied by ventricular radius of curvature divided by ventricular wall thickness), which is an important stimulus for ventricular remodeling (3). We disagree with the implication of Dr. Conraads and colleagues that reverse remodeling is unimportant. An international consensus statement reinforces that slowing or reversing ventricular remodeling is clinically important and essential to prevent the progression of heart failure (4). We also disagree that resistance training should be recommended to heart failure patients based on current evidence. We reiterate that our meta-analysis supported the efficacy of aerobic training on reverse ventricular remodeling and should be the choice of exercise training for clinically stable individuals with heart failure and impaired left ventricular systolic function for whom prevention of heart failure progression is a priority.

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